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THE Unexplained

MYSTERIES OF MIND SPACE & TIME

147

Pied Piper-fact?
Born to be psychic?
The inventor of psi
A dolphin's world
Mirabelli

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THE Unexplained
MYSTERIES OF MIND SPACE & TIME

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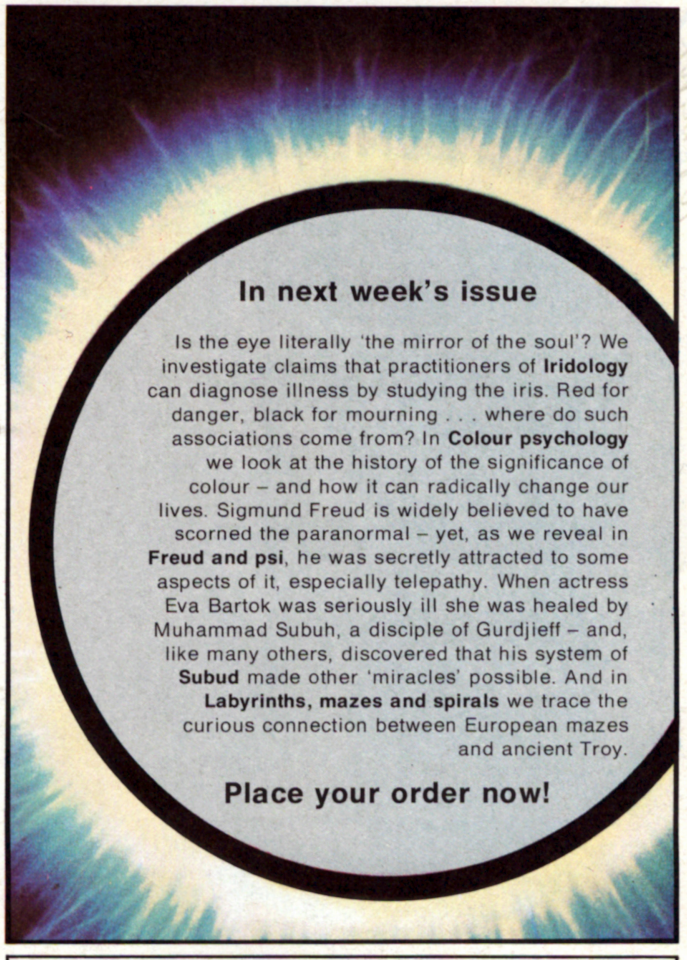
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Is the eye literally 'the mirror of the soul'? We investigate claims that practitioners of **Iridology** can diagnose illness by studying the iris. Red for danger, black for mourning . . . where do such associations come from? In **Colour psychology** we look at the history of the significance of colour – and how it can radically change our lives. Sigmund Freud is widely believed to have scorned the paranormal – yet, as we reveal in **Freud and psi**, he was secretly attracted to some aspects of it, especially telepathy. When actress Eva Bartok was seriously ill she was healed by Muhammad Subuh, a disciple of Gurdjieff – and, like many others, discovered that his system of **Subud** made other 'miracles' possible. And in **Labyrinths, mazes and spirals** we trace the curious connection between European mazes and ancient Troy.
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Born to be psychic?

Are some people more likely to be psychic than others simply because of their race or even their blood group? RENÉE HAYNES assesses the controversial theories that suggest that being psychic is hereditary

A PSYCHIC is a person in whom one or more of the different kinds of extra-sensory perception shows itself to an unusually high degree. Telepathy, clairvoyance, precognition, retrocognition (an awareness of something happening in the past as if it were happening now) are the various methods by which a psychic may perceive the world.

A degree of psi (the preferred term for psychic abilities) probably exists at some level in all humans, and surfaces more easily in the young. Small children often have a telepathic link with brother or sister and almost always have such a bond with mother or father, at least until the more precise communication by words begins to develop. Flashes of telepathy may well continue in an interested and receptive family. A study by the psychiatrist Dr Berthold Schwarz recorded 1520 instances of psi among his own children up to the time they were 15 years old. The examples he cites are simple enough; for instance, he mentions occasions on which his young daughter told him of the often prosaic thoughts that were running through his mind. Schwarz concluded that telepathy among family members is much more frequent than has been supposed but, because the telepathic communication is rarely of a significant nature, it passes unrecorded and without comment.

A modern gipsy camp. Gipsies are traditionally believed to possess psychic abilities, especially the gift of fortune-telling. Some people believe that the Tarot cards originated with the gipsies long ago, but possibly only because the history of both is obscure. However, there does seem to be evidence that clairvoyance runs in some gipsy families – and possibly in those of other ethnic groups.

Perhaps another reason why this form of psi goes unnoticed is that often we are unaware that we are receiving information telepathically. In 1966, researchers at Newark College of Engineering in New

Jersey, USA, set out to prove this in the laboratory. Two volunteers were seated in different rooms; one was given a list of names, some but not all of which were relevant to the other sitter, who was wired to a machine that plotted changes in blood pressure. When the experiment began the person with the list was told to concentrate on the different names in random order. It was shown that whenever a name came up that was known to the other sitter, the machinery to which he was connected registered a slight change in blood pressure. He was receiving information at a subliminal level; at no point did he announce that the sender was thinking of a specific name; rather the telepathic interaction was played out subconsciously, measurable only by the physiological changes in blood pressure.

Below left: William Wordsworth (1770–1850), the English Romantic poet who believed that children are born 'trailing clouds of glory' – that is, that they are still in touch with a spiritual realm; it is only the process of growing up that ruins their innocent insight. Paranormal activity seems to be particularly associated with children and teenagers

Below: Tibetan monks at prayer. Research has indicated that environmental factors often influence psychic ability; Tibetans, living almost in isolation from the rest of the world, and traditionally leading a simple, spiritual life, are widely believed to possess particularly strong psychic powers

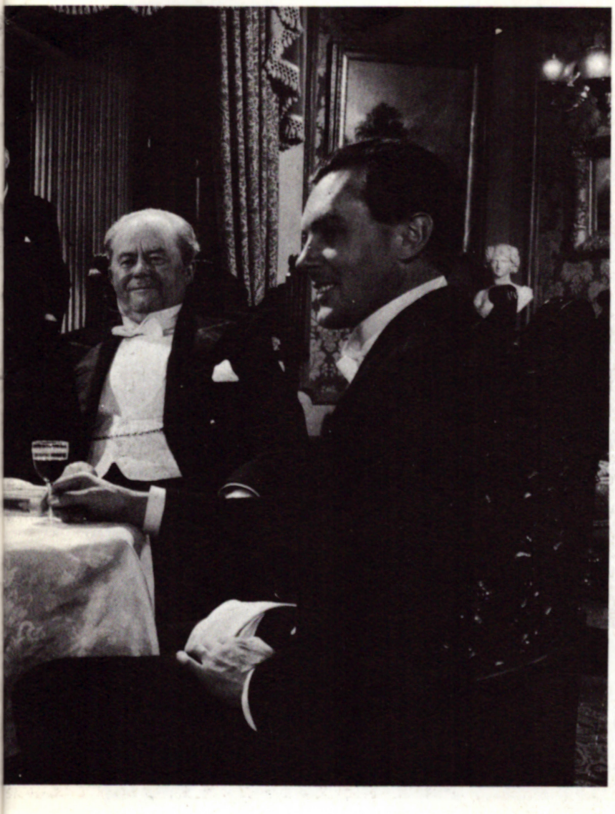
Below right: an Eskimo. Diet is claimed to be a major factor in inducing psi; in the West vegetarianism is believed to make its adherents psychic. Yet some people who are virtually exclusive carnivores, such as Eskimos, are legendary clairvoyants

Psychic awareness probably diminishes as a child learns how to speak and to concentrate on the task in hand. As a child grows older he no longer allows himself to be distracted by a ticking clock or by passing traffic and, in the process of blocking out this irrelevant data, he may unwittingly shut out information he is receiving telepathically.

There are various possible reasons why certain children seem able to retain their psychic abilities into later life. A child who feels neglected or left out may seek, cultivate and publicise psi as a way of attracting attention. He may find that his knowledge of some totally unexpected event can put him in the limelight in a most gratifying way. Other factors may also influence the rate at which psychic awareness fades: its original intensity, which may well be genetic; the attitude towards psi phenomena in the society to which the individual belongs; the effects of climate, diet and day to day activity. Individual experiences have a part to play too. For example, someone who foresees an event in a dream may, thereafter, pay much more attention to all of his dreams, finding that his nocturnal visions do indeed tally with subsequent events in the waking world.

Let us take each of the above factors in turn, looking first at the inheritance of psi. As far as the author is aware, no scientific studies of the matter exist. However, it is worth remembering that many traditions 'run in families'. Also, psi occurs more much often in some groups than in others – notably gipsies, Celts and Basques, among whom, oddly and perhaps significantly, Rhesus

Left: Michael Bentine, the versatile British comedian who is also a committed Spiritualist. Obviously extrovert, he seems living proof of the theory that outgoing and warm personalities are more receptive to psi. Some theorists go further, suggesting that physical type may make a person more or less psychic. Of Dr W. H. Sheldon's three classic types (below right, left to right), the endomorph, the mesomorph and the ectomorph, it is the bony, introverted ectomorph who is least successful in ESP tests



Left: a scene from J. B. Priestley's play *An inspector calls*, about the cumulative guilt of a highly respectable family in bringing about the suicide of a young woman. Just as psychic abilities are believed to run in families, perhaps a group 'fate' can also be inherited – and inescapable?

negative blood is unusually common.

An attempt to link psi abilities with physiological characteristics was made by French researchers in the 1960s. They suggested that mediums tend to have a good deal of hair, to bruise and bleed easily, and to suffer from weak ligaments. Such a vague piece of scientific research has little relevance today and there certainly seems to be no confirmation of its findings. However, it may be useful in this connection to look at Dr W. H. Sheldon's work on the link between physique and personality.

According to Sheldon the human race can be divided into three main body types, endomorphs, mesomorphs and ectomorphs (obviously, there are some physiques that do not fit neatly into any of the categories but are a mixture of the three).

The typical endomorph is physically plump and emotionally a good mixer, enjoys comfort, food, drink and social events and needs company when he is unhappy. Most significantly, the endomorph is predominantly extrovert – and extroverts tend to be successful in parapsychological experiments. Other traits that appear to be associated with the high scorer in ESP tests include warmth, sociability, cheerfulness and enthusiasm. Each of these, apparently, is also found in the typical endomorph.

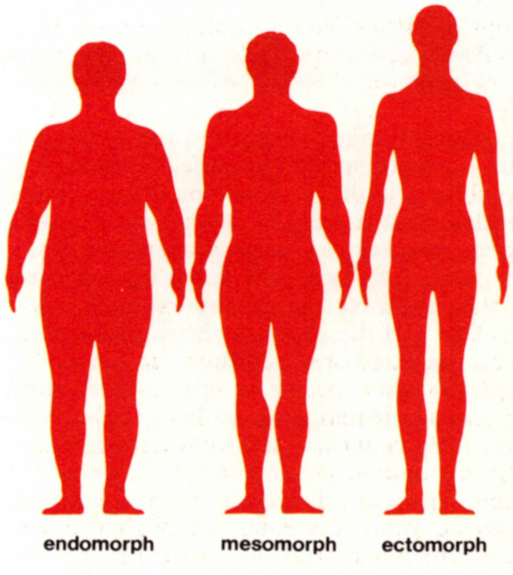
The mesomorph, according to Sheldon, also tends to be extroverted, has an athletic, muscular build, is tough, quick, alert and adventurous. Parapsychologists have discovered that people with these characteristics also seem to do well in ESP tests.

The 'sacred disease'

At the other end of the scale, those who do badly in ESP tests, are the introverts; those who are tense, excitable, timid, withdrawn and prone to depression. These traits correspond to Sheldon's ectomorph – the person with a thin, bony physique.

However, while extroverts would appear to obtain positive results in laboratory tests, no one has yet discovered whether introverts have more *spontaneous* experiences of ESP.

Another characteristic of the psychic both in primitive and in civilised cultures may possibly be disturbances in the electrical functioning of the brain, notably those brought about by epilepsy. Epilepsy was regarded as the 'sacred disease' of classical times; and even in the 1960s, the witch doctors or *sangomas* of certain African tribes displayed a similar attitude. When the anthropologist Adrian Boshier went to live among the primitive tribes of South Africa he was accepted by them largely because he had epileptic seizures; in fact he was trained for and passed through seven successive initiation ceremonies, which eventually qualified him as a witch doctor. It is interesting that the well-known medium Mrs Leonore Piper was seen to have small



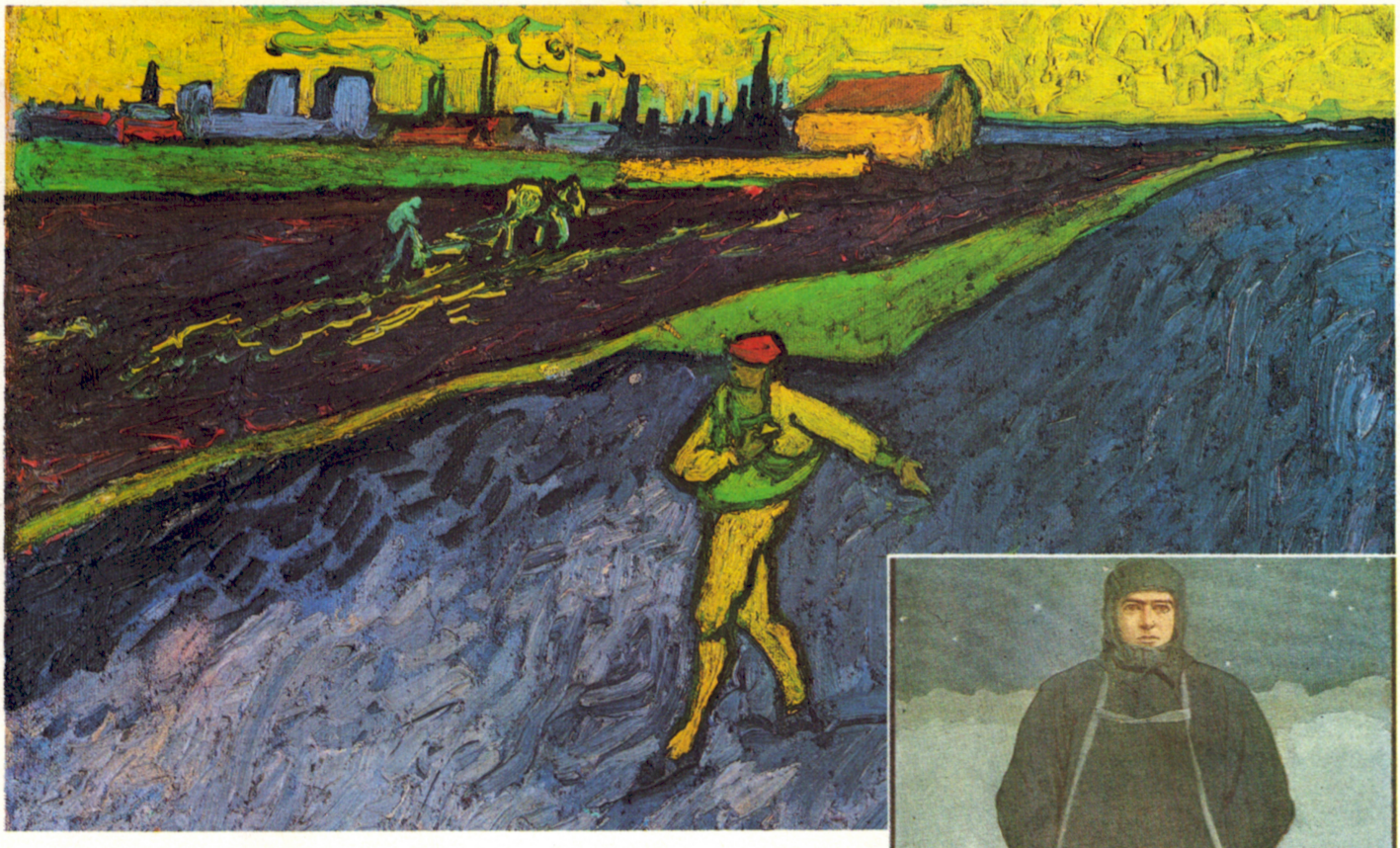
seizures similar to those of epilepsy before going into a trance. Further evidence comes from a paper by the American parapsychologist William G. Roll that appeared in the *European Journal of Parapsychology* in 1978: entitled 'Towards a theory of the poltergeist', it suggests that epilepsy may be connected with poltergeist activity, and that a particularly lively example of the phenomenon may be equivalent to a *grand mal* fit.

The ideas, customs, beliefs and assumptions of the social group into which a child is born and brought up will affect his development in every way. A marked degree of paranormal cognition may be accepted and rationalised at certain times and at certain places. In ancient Greece, for example, and later on in Japan (where there was an official Ministry of Divination until the mid 19th century), and in Africa even today, a child's curious gift may be respected and cultivated. In a pre-eminently industrial civilisation it may be rejected as fraud or lunacy. Elsewhere opinion may be uncomfortably divided, especially where no distinction is made between psychical and spiritual activities, the paranormal and the supernatural.

The part the physical environment plays in determining psi is difficult to pin-point. Psychic ability seems to emerge more often in nomads than among settled peoples; perhaps this is because the former tend to lead unstructured lives, free from the bounds of order and routine, which makes them more relaxed and receptive to psi. Certainly, studies since the turn of the century give the impression that psi is more likely to occur in subjects who are relaxed; conscious attempts to induce it appear to be self-defeating.

This is one explanation for the fact that subjects tend to perform badly under laboratory conditions. The controlled environment necessary for a scientific test obviously puts a strain on the person under investigation, whether or not he is known to have psychic abilities. Both this and the subject's state of mind will influence results. For example, subjects tend to perform best when they are in a happy mood. A good relationship with the parapsychologist, when a feeling of mutual trust pertains, is also productive. And in telepathy experiments, the relationship between the sender and the receiver would also appear to be influential.

Studies also suggest that subjects who go into the laboratory expecting to produce



Vincent Van Gogh's *The sower*. Although obviously non-representational, it carries the conviction of true vision – as if Van Gogh actually saw the scene as he painted it. Mentally unstable for much of his adult life, it is possible that he shared the same neurological and emotional condition as some of the great mystics and saints

Right: Sir Ernest Shackleton (1874–1922), leader of the 1914–1916 transantarctic expedition. Enduring extreme physical hardship and being compelled to eat a restricted diet Shackleton, and at least two of his companions, hallucinated an extra crew member. Other explorers have had similar experiences. Some scientists believe that a diet lacking in calcium and sugar – and Shackleton's almost certainly was – can induce visions

negative results usually do badly, while those with a positive attitude to psi tend to score more highly. Other facts may also be significant, meriting further investigation; for instance, one study concluded that telepathy occurred most frequently on nights of the full Moon.

The spontaneous psychic experience, as opposed to the one that occurs under laboratory conditions, is also influenced by state of mind, though since most accounts are anecdotal the exact conditions that precipitate the phenomenon are more difficult to pin down. Someone who is rather tired, resigned, with low blood pressure and in the stage between waking and sleeping seems more prone to become aware of an extrasensory impression than does someone who is awake and alert and concentrating on a particular matter. In connection with this, people seem more likely to experience psi when they have just emerged from meditation – a fact that tallies both with clinical studies and with anecdotal accounts.

Those who recognise and value extrasensory perception can, and often do, stimulate it using meditation and other psychophysical techniques such as yoga exercises and deep breathing. Rhythmic singing, drumming and dancing may be used, as they were by the biblical prophets, by those anxious to increase their powers.

Above: a typical holiday scene. Parapsychological laboratory experiments suggest strongly that the more relaxed the subject, the more likely he or she is to be receptive to telepathic impressions. It also appears to be true that the more relaxed we are in everyday life – on holiday for example – the greater the chance of our experiencing spontaneous psi

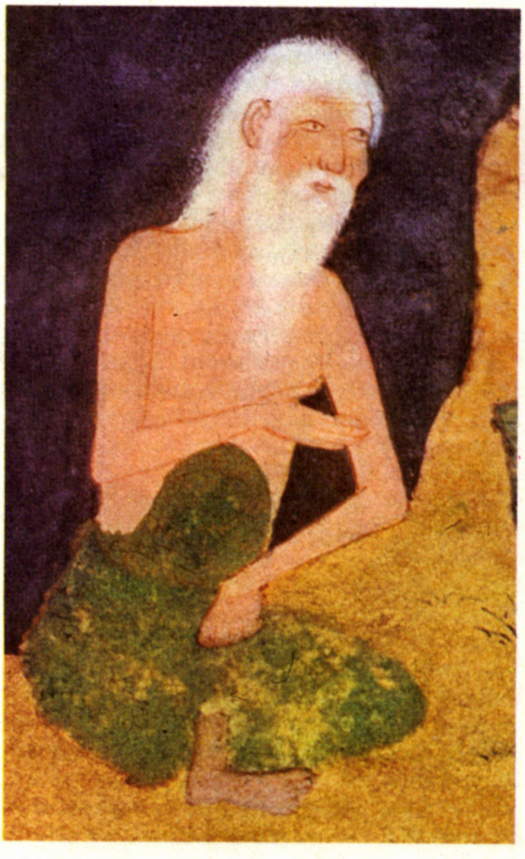
Right: a hermit at the mouth of his cave. Hermits sought solitude to pray and meditate, and fasted for long periods of time, thus creating ideal conditions for the creation of visions – and perhaps becoming especially receptive to telepathic impressions

Food for thought

Diet, too, may have a part to play. Vegetarianism is allegedly valuable in the cultivation of psychic powers, yet many groups in which psi seems to be unusually common – Eskimos, Bushmen, Australian Aborigines – are hearty carnivores. And in the 1980s research began to discover that a marked absence of calcium (and possibly of sugar) in a diet may cause the subject to become prone to visions. However, there is no guarantee that the visions are necessarily true to life, that they represent future or past events.

Sex and sexuality may also influence psychic powers. Traditionally, the scryer – the young person employed to see visions in water or a crystal ball – had to be a virgin who had not yet reached puberty. In the same way it was popularly believed that mediums lost their powers after marriage. However, this was certainly not the case with the great Victorian medium D. D. Home. A theory put forward in 1914 by Edward Carpenter in *Intermediate types among primitive folk* suggests that a homosexual temperament may be conducive to psychic development. Perhaps this kind of personality, sensitive to the feelings and problems of both sexes, experiences a profound uncertainty about his or her own orientation, which makes him or her more sensitive and receptive to psi.

Different motives can fuel the desire to develop paranormal powers: scientific curiosity, a sense of vocation, a craving for



fame, reverence, money or power. Some people, of course, do not seek psi, they have it thrust upon them. Thus, the fasting hermit seeking silence and solitude for prayer may find himself distracted by telepathic impressions that he may not be able to ignore.

Whether psi is welcome or unwelcome, whether it is cultivated or repressed, whatever are the many factors that may influence it, very much more research needs to be carried out before firm conclusions can be drawn concerning either its nature or its source. But perhaps one of the most significant possibilities to have emerged so far is that, to varying degrees, we may all be capable of psi.

Further reading
Stephen Black, *Mind and body*, Macmillan 1969
Renée Haynes, *The seeing eye, the seeing I*, Hutchinson 1976
Herbert Thurston, *The physical phenomena of mysticism*, Burns Oates 1952

In their element

Scientists agree that dolphins are highly intelligent – and some research suggests that they are even brighter than us. FRANCIS KING explores the abilities of these playful creatures and the affectionate relationships that they often strike up with humans

A BOTTLE-NOSED DOLPHIN, one of those lovable extroverts that delight the crowds at large aqua-zoos by playing with beach balls, leaping for fish, and even removing the top halves of bikinis worn by female attendants, has learned to speak an English sentence – with, admittedly, a strong Hungarian accent.

So says Dr John Lilly, a neurophysiologist who has been studying dolphins since the mid 1950s and is currently working at 'Marine World', Redwood City, California.

The dolphin that allegedly spoke, and whose words were recorded on tape after being picked up on one of Dr Lilly's array of underwater microphones, made a simple enough demand. 'Throw me a ball,' it said, in a pronunciation suggesting it had spent its calfhood in Budapest.

Not all those researching dolphin behaviour and intelligence are prepared to accept Dr Lilly's remarkable claim. He is trying, some say, to turn dolphins into 'floating Hobbits', his theories concerning their intelligence are 'speculative to the point of irresponsibility', and the vocal equipment of cetaceans – dolphins and whales – is quite incapable of ever producing human language. As for the English sentence recorded by Dr Lilly, it is clear, so it is asserted, that some electronic fault in a microphone caused it to pick up words spoken by Dr Kert, the Hungarian-born physicist who leads the Redwood City research team.

Dr Lilly remains unabashed. He is convinced that the words came from either Joe or Rosie, a dolphin pair that had frequently heard the voice of Dr Kert and had picked up their English pronunciation from him.

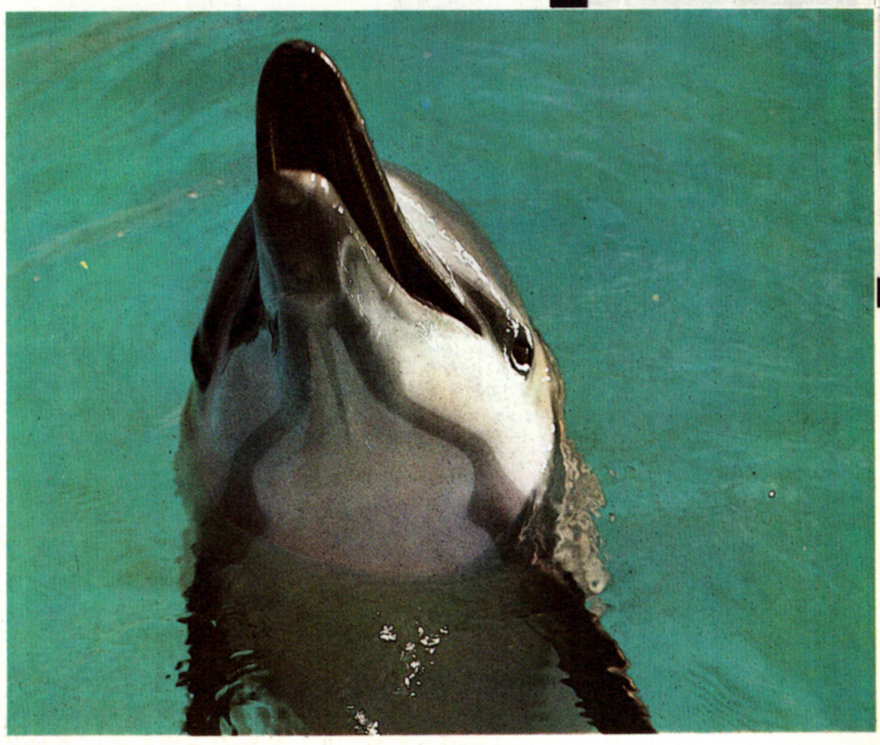
Whatever the truth of the matter there is no doubt that dolphins have a highly developed brain structure, more complex even than that of apes, and they have a considerable native intelligence. They are also extraordinarily friendly to mankind, noticeably lacking the responses of fear and hostility to human beings that characterise most wild animals.

This endearing friendliness has always been so noticeable that it was commented upon by Greek and Latin writers. For example, the Greek historian Plutarch remarked in the first century AD that wild animals avoid men because they are afraid of them, that tame animals are friendly to men out of self-interest, because they are fed by them, and that: 'to only the dolphin Nature has given that which the philosopher seeks, friendship for no advantage; though it has no need of any man's help, yet it is a genial friend to all, and has helped Man.'

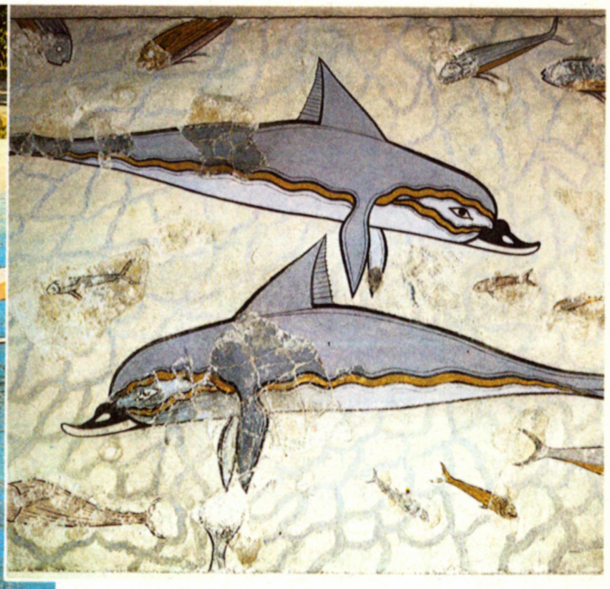
A century after Plutarch the poet Oppian told a story illustrating the friendship between Man and dolphin. On the island of Poroselene, he said, lived a youth who, from childhood, had been loved by a dolphin. The boy would swim with the dolphin, play with it, and even ride on its back. The dolphin formed a strong emotional attachment to its human companion 'being fain to kiss and embrace the youth', and when the boy died:

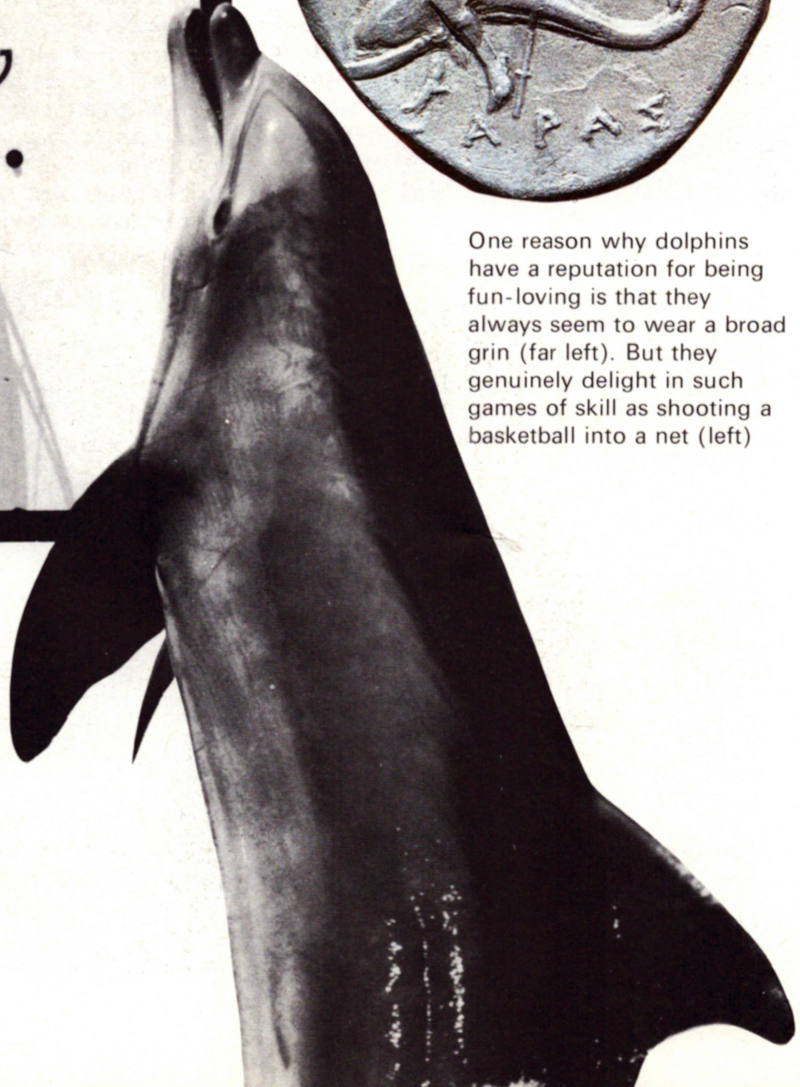
> like one sorrowing the dolphin visited the shores in quest of the companion of its youth; you would have said that you truly heard the voice of a mourner, such helpless grief was in it. And although the islanders called it often, it would no more listen to them nor accept food they offered it, and very soon it vanished from that sea and none saw it any more.

For almost 2000 years this and many similar tales dating from classical times were taken to be no more than pleasant fantasies. Modern research and observation, however, have shown that there is no reason to disbelieve the existence of a factual basis for such stories. Several present-day observers of dolphins, among them the writer Ronald



Dolphins have figured in literature and art since ancient times: the fine dolphin fresco (far right) from the royal palace at Knossos, Crete, dates from 1500 BC. The friendship of men and dolphins was often celebrated: on a coin (below right) from the Greek city of Tarentum, in southern Italy, the city's founder, Phalanthus, is shown riding on a dolphin. A killer whale (right), closely related to the dolphin and nearly as intelligent, here shows itself less willing to be used as a mount





One reason why dolphins have a reputation for being fun-loving is that they always seem to wear a broad grin (far left). But they genuinely delight in such games of skill as shooting a basketball into a net (left)

Lockley, have experienced a relationship with dolphins similar in essence to that described by Oppian. Even the dolphin's supposed attempts to 'kiss and embrace the youth', which might be thought to be a flight of poetic fancy, are in complete conformity with modern observations of dolphin behaviour. Dolphins, like most advanced mammals, seem to enjoy masturbating and those in captivity have been seen to attempt to do so by rubbing themselves against humans swimming in their tanks.

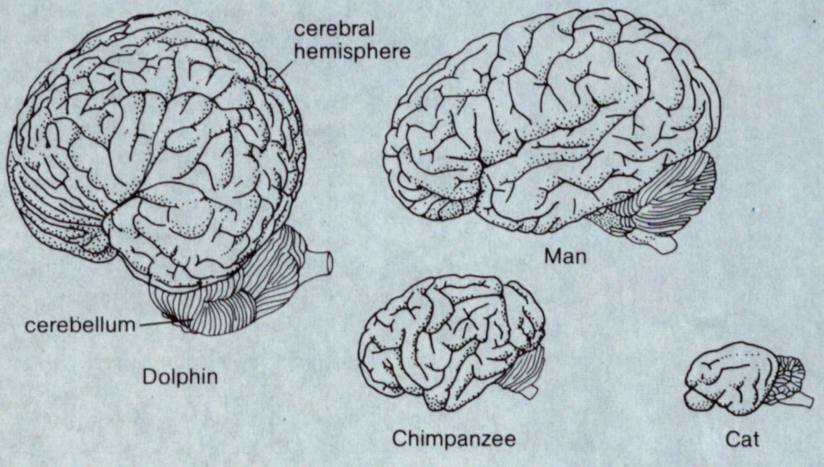
Nevertheless, it would be wrong to think that human–dolphin friendship is only, or even usually, a product of the animal's sexual drive. Thus Opo, a young female dolphin who during 1955 and 1956 made friends with some of the inhabitants of the New Zealand village of Opononi, seems to have had no other motive than a desire for companionship.

Possibly she was an orphan – certainly she first came to human attention when she began to nudge dinghies and other small boats in a manner that suggested she was looking for some lost parent or friend. By the autumn of 1955 she was allowing the crews of such craft to touch and even tickle her. Her liking for human beings steadily increased and, early in December, she began to swim into shallow waters and introduce herself to bathers, making it clear that she desired physical contact with them.

By the summer holiday – which in New Zealand falls at Christmas and New Year – a newspaper had reported her activities. Hundreds of sightseers made their way to the beach to watch bathers scratching, tickling and playing with Opo. She showed no signs of fear and even allowed some favoured swimmers to hold her in their arms. When introduced to a beach ball, she quickly learned to play with it, using her tail or head to throw it high in the air.

Opo did not like her human friends to be too boisterous in their play; if they became

Sense and sensibility



The degree of development of the different parts of an animal's brain can often be related to the creature's way of life. The part of the brain called the cerebellum, for example, is responsible for balance and posture, and so is more highly developed in birds than in fish, for whom these functions are less important. In mammals' brains (left) the cerebellum has highly developed side lobes, which govern the movement of the limbs. In the primates they regulate the delicate movements of the hands or paws, and of the fingers; but they are almost as important to the agile dolphins. The distinctive abilities of the higher mammals are largely due to the neocortex, the outermost part of the cortex – the layer of nerve cells that covers the cerebellum and the cerebral hemispheres. The surface of the small brain of the cat is smooth, whereas the surfaces of the large brains of chimpanzees, men and whales are deeply folded. This folding results in a large surface area, and hence a high proportion of neocortex. Eighty per cent of the human brain is neocortex – more even than in the dolphin brain. Certain areas of the neocortex are concerned with specific senses; the remaining 'association areas' are crucially important to intelligence, for they are concerned with learning. They form over three quarters of the neocortex in the cleverer mammals – chimpanzees, humans and dolphins.

Brains of four mammals, drawn to scale. The dolphin's brain is slightly larger and heavier than Man's, but the human brain has a greater proportion of neocortex, responsible for higher intellectual functions

too rough she made no attempt to retaliate but simply swam away, indicating her displeasure by smacking the water with her tail. Children were her especial delight, presumably because they were gentler than adult swimmers, and she became a particular friend of Jill Baker, a 13-year-old whom she allowed to take brief rides on her back.

Death of a dolphin

One day, in April 1956, Opo was missing from her favourite playground. The next day she was found dead, trapped by the shore in a rock inlet from which the tide had receded. It is possible that her liking for human companionship had killed her, that she had gone so near the shore in the hope of making new friends. But one thing is certain: in the 10 months or so of her contact with human beings she provided hard evidence that the classic 'fairy stories' of dolphins' friendliness and intelligence, and of dolphins with human riders, almost certainly had a factual basis. Even the tales told by ancient Greeks of sailors being saved from drowning by dolphins holding them above the waves until rescue arrived may well have been true: modern observers have witnessed dolphin mothers spending many hours holding aloft sick calves when the latter have lacked the strength to reach the surface in order to breathe.

There are some indications that the friendliness and affection that dolphins show to living beings of other species is related to their brain structure. The central nervous system of dolphins, like that of the other cetaceans, such as whales, is very highly developed. It is difficult to compare the dolphin brain directly with that of land mammals, for in the 30 million years or so since the mammalian ancestors of the cetaceans took to the sea the dolphin nervous system has evolved in specialised ways that help it to survive in its marine environment. Much of its mechanism is not fully understood. Nevertheless, the complexity of its brain is such that the dolphin is now generally regarded as more intelligent than other advanced mammals – the dog, seal or chimpanzee, for example. It is even possible that dolphins are more intelligent than human beings. Certainly the ratio of the dolphin's neocortex – its 'thinking brain' – to its limbic area – the oldest and most primitive part of the brain – is larger than in most human beings. This high ratio provides a clue to dolphin psychology. Evidence from human beings seems to indicate that damage to the neocortical 'association neurons' (nerve cells) correlates with impairment of the sense of humour, the capacity for emotional self-control, and the power of abstract thought – including philosophical speculation and problem solving by insight. The high degree of development of the neocortex in dolphins suggests that corresponding faculties may be well-developed in these creatures.

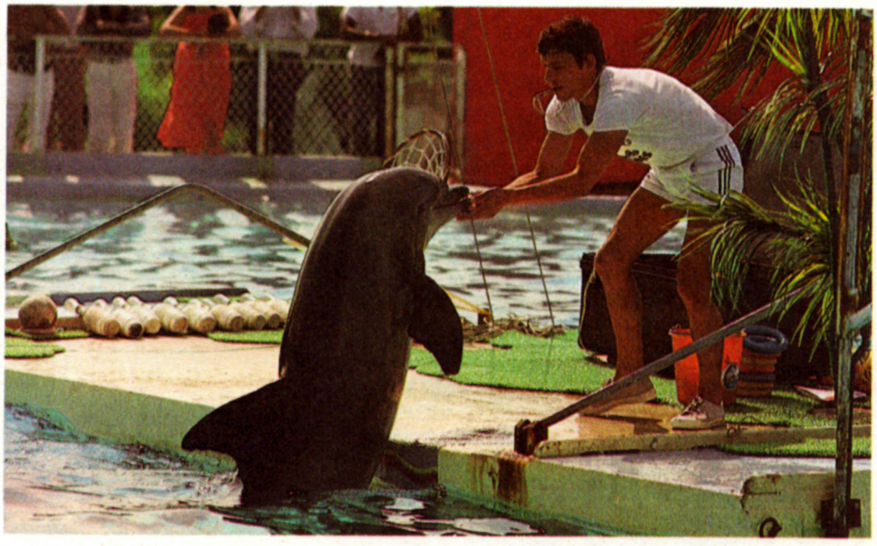
So, while we cannot *know* whether dolphins engage in philosophic or religious speculation, there seems no reason to disbelieve that they are capable of doing so. Dr Lilly has even suggested that they 'quite

naturally go in the directions we call spiritual, in that they get into meditative states quite simply and easily.'

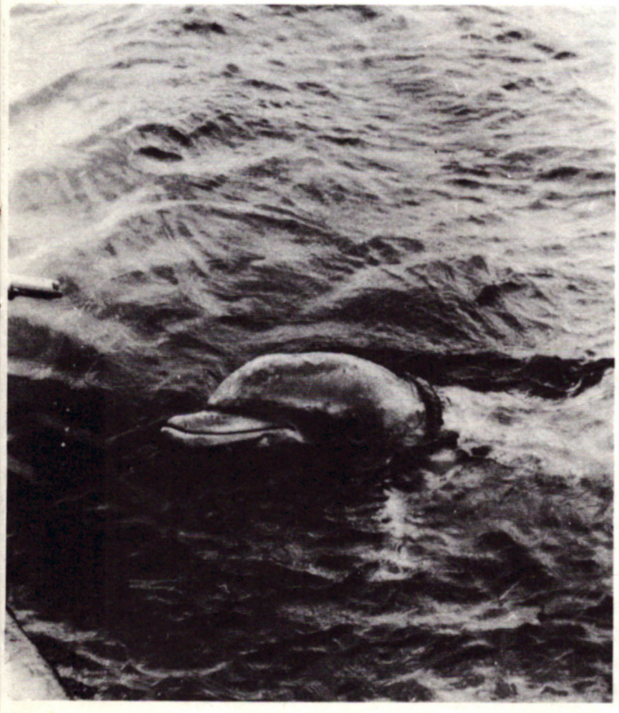
Whether dolphins meditate is likely to remain an unanswered question until someone develops a language that a dolphin can learn and use as a means of communicating with human beings. Such a step forward in the relationship between human beings and cetaceans is not impossible. For at the University of Hawaii Dr Louis Herman, a psychologist who has for some years been working with a pair of bottle-nosed dolphins, has taught his subjects to understand a vocabulary of about 30 English words. The dolphins respond to these words not only individually – which might indicate the type of learning by rote displayed by performing circus animals – but also in hundreds of combinations. Dr Herman reported a curious fact concerning his dolphins' understanding of the word 'in'. This seemingly simple English word has several different uses: it can be a preposition, an adverb, an adjective – even a verb. When Dr Herman used it in a different way from any in which he had used it before in his 'conversations' with dolphins, they showed an immediate understanding. This would seem to indicate that Dr Herman's pupils have acquired a rudimentary awareness of English grammar and want to use this knowledge in order to communicate with human beings.

It has been suggested that dolphins have a language of their own – 'Delphinese' – in which they hold long conversations with each other. There is no doubt that they *do* communicate with one another. Experiments have shown that when two previously unacquainted dolphins are put in adjoining tanks they use sounds as a means of communication. Clicks seem to be dolphins' usual mode of communication, but they also make a sound somewhat similar to human whistling. The behaviour of the dolphins in this experimental situation always seems to follow a similar pattern: one listens politely while the other clicks away, then the talker falls silent in order to listen to the reply.

The various types of whistle seem to express distress of one sort or another: anything from a mild unease to the dolphin equivalent of a scream for help. Nearby dolphins hearing a whistle of the 'scream' type immediately hurry to the rescue; even if their distressed fellow is not obviously in need of air, they push it to the surface in order that it may breathe easily. After the distressed individual has taken his first deep breath there is often a prolonged exchange of clicks and whistles among the entire group. This is considered by Dr Lilly and others to be 'evidence of meaningful exchanges in the vocal sphere'. In other words, conversation.



Above: a trained dolphin 'stands' in the water, keeping itself up by thrashing its tail rapidly, as it takes food from its handler



Left: a US Navy trainer holds out an acoustic homing device to a porpoise, Tuffy, which is being trained as a messenger for a Sealab underwater laboratory. Dolphins and porpoises have also been trained for more sinister purposes – as 'frogmen', to carry explosive charges and detonate them against the sides of enemy ships

It is difficult to devise experiments to test whether dolphins have the capacity for 'insight' – the ability to solve problems by thinking about them and then acting, rather than by blind trial and error. But observation of captive dolphins suggests that they do possess this quality.

In spite of the possibility that the communication barrier between Man and dolphin may be broken down, there seems little likelihood of our ever fully understanding cetacean consciousness. For dolphins have a sonic sense: they can 'illuminate' objects with sound pulses and from the echoes can judge the objects' positions. No human can understand what it is like to 'see' such a sound picture, any more than someone born without eyes can understand what it is like to look at a painting by Gauguin. We may one day come to comprehend the nature of dolphin intelligence, but we will never be able to share their perceptions of the world.

Are the anecdotes about the cleverness of animals true? See page 2966

Is the legendary tale of the magical piper who spirited away Hamelin's rats – and children – based on some ancient disaster in the city's history? GRAHAM FULLER and IAN KNIGHT investigate some possible origins for the story

Paying the piper

ROBERT BROWNING'S poem *The pied piper of Hamelin* is one of the best known and most loved children's poems in the English language. It is exciting, mysterious and marvellously descriptive, sweeping the reader away to an enchanted land of long ago, to a small German town in Brunswick, where the inhabitants are troubled with

Rats!
They fought the dogs, and killed the cats,
And bit the babies in the cradles,
And ate the cheeses out of the vats,
And licked the soup from the cooks' own ladles. . . .

In vain do the townsfolk try to rid themselves of this menace, until an enigmatic stranger – 'His queer long coat from heel to head/Was half of yellow and half of red' – offered to do the job for them 'By means of a secret charm'. His price was 1000 guilders; relieved, the mayor and town council struck the bargain. The stranger produced a pipe 'of smooth straight cane', and began to play:

And ere three shrill notes the pipe uttered,
You heard as if an army muttered;
And the muttering grew to a grumbling;
And the grumbling grew to a mighty rumbling;
And out of the houses the rats came tumbling.

Through the streets the Piper led them, until they arrived at the banks of the river Weser, where, as the Piper played on, the rats dived like lemmings into the water. The townsfolk were delighted, but in their euphoria seemed disinclined to pay the Piper his due. After all, the rats were gone – if they refused to pay, he could do nothing. But, as the moral of the story has it, a promise is a promise, and the Piper's revenge on the ungrateful Hamelin burghers was bitterly just. Once more he went into the street and began to play, but this time it was not rats he was luring:

Out came the children running.
All the little boys and girls,
With rosy cheeks and flaxen curls,
And sparkling eyes and teeth like pearls. . . .

Powerless, the adults watched as the children, 'Tripping and skipping, ran merrily after/The wonderful music with shouting and laughter', until at last they came to the mighty 'Koppelberg Hill':

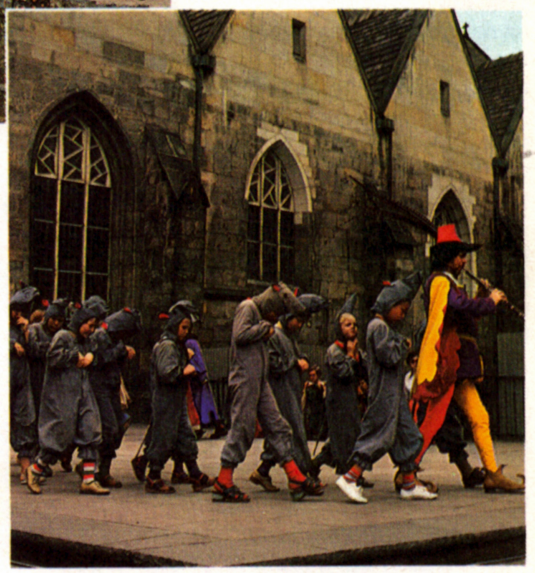
When, lo, as they reached the mountain-side,
A wondrous portal opened wide,
As if a cavern were suddenly hollowed;
And the Piper advanced and the children followed,
And when all were in to the very last,
The door of the mountain side shut fast.

All, that is, save one, a little lame boy who could not keep up with the other children.

It is, of course, a charming fairy story, with a nice line in poetic justice. But, like so many old folk legends, the story of the Pied Piper is firmly based on fact. Hamelin – or more correctly Hameln – is a real city, in Lower Saxony in modern West Germany, south-west of Hanover, on the Weser river. Furthermore, the story of the Pied Piper – or

Left: the Pied Piper promises the mayor and town council of Hamelin that he will rid the town of its rats for a fee of 1000 guilders (from a 19th-century German book illustration)

The picturesque West German city of Hameln (left) is proud of its Pied Piper legend, and regular re-enactments of the story are held in its streets (below)



Below: as good as his word, the Pied Piper leads Hamelin's rats to a watery grave in the river Weser (from a 19th-century book illustration)

Rattenfänger (rat-catcher) as he is known there – seems to be inextricably tied up with the development of the town.

At least two splendid Renaissance houses, the *Rattenfängerhaus* (Rat-catcher's House) and *Hochzeitshaus* (Wedding House), carry inscriptions to the effect that, on 26 June 1284, a piper arrived in the town, and took away 130 children to the Koppen mountain, where they were lost. There is a street called the *Bungen-Strasse*, or Drum Street, where it is unlucky to play music for fear of rousing the Piper's wrath once more. 'It is not long,' commented S. Baring-Gould in 1901, 'since two mossgrown crosses on the Koppenberg marked the spot where the little ones vanished.' This process of enshrining the legend continues to the present day; for instance, a relief fresco, built in 1960 for the women's technical school, illustrates the Piper's tale.

To discover whether there is any truth in the story it is necessary to go back to Browning's sources. Although James Howell, the Historiographer Royal, makes reference to the story in *The familiar letters* (1645–1655), there can be little doubt that Browning first obtained his information from the 1693 edition of *Restitution of decayed intelligence in antiquities* by the historian Richard Verstegen; there the salutary tale of the Pied Piper appears almost exactly as Browning re-told it.

According to Verstegen, 'this great wonder happened on the 22nd day of July, in the year of our Lord 1376.' Nathanial Wanley, also writing in the 17th century, says in *The wonders of the little world* that the events happened 'in the year of Christ 1284, upon the twenty-sixth day of June . . .'.

In these widely quoted references to the rat-catcher lie the clues to what really happened. First, it is obvious that the story was already ancient by the time it was recorded. The houses in Hameln bearing inscriptions may be old, but they were built at least 200, and perhaps even 300, years after the supposed events. The accounts by the English writers were written a further 100 years after that. Second, there is a curious discrepancy in the recorded dates: 1284 according to the inscriptions and Wanley, and 1376 according to Verstegen. If one begins looking for historical evidence around these dates, it emerges that the Pied Piper was, like so many legends, a folk-memory that telescoped two similar historical events into one.

In 13th-century Europe, education for the majority was unknown, and religion held the

bulk of the population in superstitious awe. Against such a background was played out, in 1212, the bizarre story of the Children's Crusade. The belief was that a crusade led by 'innocents' would be looked on with favour by God – and thus a victory against the Islamic infidels would be assured.

The crusade started in the Rhineland, and was led by a boy from Cologne called Nicholas, who claimed to be divinely inspired. With the help of a few priestly adults, Nicholas set about recruiting, and by July 1212 was said to have collected as many as 40,000 children between the ages of 10 and 18. With no provision for feeding themselves, and no weapons, they placed their trust in God. They marched up the Rhine, and struggled through the Alps and down into Italy. On 25 August they reached Genoa. One source says there were a mere 7000 left; if the figures are accurate, then the toll along the way was appalling. In Italy, the movement collapsed into confusion. The miracle Nicholas had led his followers to expect – the parting of the Mediterranean Sea – did not take place, and the local authorities could not be persuaded to support so hopeless an enterprise.

Two ships were chartered and sailed away, never to be seen again. Another source describes how unscrupulous Marseilles merchants provided seven ships, two of which sank; the remaining ships deposited their passengers in the slave markets of the East. Those who remained in Italy were forced to struggle back home the way they came. The story of an exodus of children, who march away beyond the mountains and are never seen again, is not so far removed from that of the Pied Piper.

The second date, 1376 – that given by Verstegen – offers another possibility. Hameln's tale contains an ominous element in its account of the unusual behaviour of the rats. At first they multiply; then they sicken and disappear, and shortly afterwards a vulnerable section of the human population is struck down. This would seem to be as effective a description of the onset of bubonic plague as any. In 1376, the Black Death was undergoing one of its periodic revivals in most of Western Europe.

The plague swept across Europe from Asia in 1339, and within a decade it had reached as far as Britain. The plague is transmitted by fleas who live on rats. When the rats die, the fleas seek out new hosts; in the medieval world, that host, the plague's next victim, was usually Man. The statistics are incomplete, but rough figures suggest that in Europe the disease might have claimed as much as a third of the population. There were so many dead that the authorities could not cope, and the disposal of bodies was left to the lowest orders of society – beggars, vagabonds and those who had least to lose.

It is possible to find several strands in the Piper's story that hint at a distant memory of the plague. Significantly, the German sources stress his profession rather than his technique; indeed in one version he used the herb valerian to lure away both rats and children, rather than the pipes. A 17th-century engraving by the Dutchman Cornelius Vischer illustrates a professional rat-catcher of that time. It shows a man whose outlandish finery and coloured flag, designed to attract attention to his trade, are strongly reminiscent of the Piper's eccentrically coloured coat. The Rat-catcher's musical attributes could have been added later, for, as the

Right: the *Triumph of death* by Pieter Brueghel the Elder (1525?–1569), which was probably inspired by the ravages of the Black Death, the bubonic plague that first devastated Europe in the mid 14th century, killing a third of the population, and continued to recur sporadically until the late 17th century. The story of the Pied Piper may be allegorical, referring to the death of the town's children from the plague, which was spread by rats. Or the children may have been victims of the convulsive disease St Vitus's Dance (top right, in an engraving by Brueghel the Elder), the 'dancing madness' that afflicted many people in the medieval period

Above: the Pied Piper and the children of Hamelin disappearing for ever into the mountain (from a 19th-century book illustration). Another origin for the story of disappearing children could be the Children's Crusade of 1212 (above right), when about 40,000 children from the Rhineland marched away across the Alps, most of them never to return

myth of Pan suggests, the pipes have a strong folklore all of their own.

Within the context of the plague, the Piper may have been a brave soul who tried to rid the town of its plague-bearing rats, or perhaps he was merely a wandering vagabond who helped Hameln bury its dead. And perhaps the crosses on the side of the Koppenberg mentioned by Baring-Gould marked the mass graves of the plague victims.

Funeral march

Even the dance the children performed as they followed the stranger out of town has a possible allegorical significance. Many medieval scholars and artists were struck by the moral lesson offered by the plague, namely that death claimed all regardless of age or rank. It was an idea that found expression in the concept of the 'Dance of Death', in which death is often portrayed as a skeleton leading a procession of victims.

It is possible to take the concept of a disease-ravaged town one step further with another plausible explanation, which actually fits the facts contained in the Pied Piper story quite closely. In the 12th and 13th centuries, Europe was racked by several outbreaks of so-called 'dancing madness', or St Vitus's Dance, an illness that medical historians strongly suspect to have been Sydenham's chorea, a nervous disease that causes uncontrollable muscular spasms in the face and limbs. To the uneducated villagers witnessing victims of the illness, these spasms often seemed like manic dancing, an illusion heightened when sufferers banded together and seemed possessed of a mass hysteria, twitching, jerking, convulsing and foaming at the mouth.

Chorea, which is closely associated with rheumatic fever, is most prevalent in the young and tends to attack females rather more frequently than males. Medieval medical relief was virtually non-existent, and dancers were often forcibly restrained or calmed by music. The pipes were particularly favoured as a means of soothing the afflicted. In the image of a piper playing to quieten the spastic seizures of a group of youthful sufferers, we come very close to the central image of the Hameln story. Perhaps it is not too fanciful to suggest that the boy who is 'left behind' was a belated recognition of the fact that most of the victims of St Vitus's Dance were girls.

Before leaving the Piper, it is worth considering that his story is not the only one of its kind. James Howell prefaced his narration of the Pied Piper legend with the following revelation:

> . . . a passage happen'd this week that forc'd me to wonder once more. . . . It was, that some odd fellows went skulking up and down *London* streets, and with Figs and Raisins allur'd little Children, and so purloin'd them away from their parents, and carried them a Ship-board far beyond Sea, where, by cutting their hair, and other devices, they so disguis'd them, that their Parents could not know them.

This sinister tale seems to suggest the existence of a child slave-trade.

Whatever the truth behind the Piper legend, there can be little doubt that it recalls some tragic period in Hameln's distant past – a far cry from the happy pageantry that the city's inhabitants planned for 1984 to celebrate the seven-hundredth anniversary of the Piper's arrival in the town.

'This perilous medium'

The Brazilian psychic Carmine Mirabelli had an extraordinary range of paranormal skills that were often an embarrassment to his family and colleagues. GUY LYON PLAYFAIR charts the career of this remarkable medium

ONE DAY IN 1911 a young man who was working as an assistant in a shoe shop in São Paulo, Brazil, was dismissed from his job. Apparently his employer objected to the fact that shoe boxes kept flying off the shelves when the young man was near by. The dismissed employee, whose name was Carmine Mirabelli, afterwards spent 19 days in an asylum under the observation of two unusually sympathetic doctors. One of these, Dr Felipe Aché, declared that while the young man was not normal, he was not sick, either. He concluded that his psychic abilities were 'the result of the radiation of nervous forces that we all have, but that [he] has in extraordinary excess'.

His colleague, Dr Franco da Rocha, described how Mirabelli was able to make a skull rotate on top of a glass just by looking at it. 'Nor was that all,' the doctor added. 'When I picked up the skull, I felt something strange in my hands, something fluid, as if a globular liquid were touching my palm. When I concentrated my attention further, I saw something similar to an irradiation pass over the skull, as when you rapidly expose a mirror to luminous rays.'

This was the beginning of the remarkable career of the Brazilian medium Carmine Mirabelli, who was born in 1889, the son of a Protestant pastor of Italian origin. Credited with the ability to produce every known phenomenon of a medium's repertoire, he was possibly the greatest medium of all time. In addition to regular demonstrations of telepathy, clairvoyance and precognition, his reported feats included automatic writing in more than 30 languages, and producing paintings and drawings in various styles. Although he was musically untrained he could, while in a state of trance, sing and play the piano with skill. He was also able to paint or write at the same time that he was singing, and write a message in one language while conversing in another.

In addition to all this, he was a focus for poltergeist activity for a period of some 40 years. In his presence, both in and out of doors, objects would move around, appear out of thin air, catch fire or vanish with such regularity that members of his family came to regard such happenings as routine. He was also said to have the skill of levitation, and to be able to produce visible materialisations of dead persons.

Not only did Mirabelli have extraordinary mediumistic gifts, but he also had a tremendous zest for normal life. Someone who knew him well for 20 years – his biographer Eurico de Goes – describes him as a man of great energy and charisma, who was excitable, impulsive and impatient, yet tolerant and good natured. He was quite capable of

buying 10 suits at a time and giving most of them away. Nevertheless he showed considerable business acumen, and was always able to earn a good living by normal means.

Mirabelli embraced the Spiritist cause, and founded and directed centres in several towns in Brazil. But he was unpopular with orthodox Spiritists because of his tendency towards exhibitionism and his fondness for physical demonstrations, and because he sometimes charged money for his services. But even one of his most severe critics, the Spiritist historian Carlos Imbassahy, had to admit that there was no doubt that his mediumship was genuine.

Right: Carmine Mirabelli (1889–1951), whose psychic powers were first discovered in 1911. In addition to clairvoyance, psychokinesis and automatic writing, he was said to be able to levitate, and to produce materialisations of dead people. His most celebrated demonstration of levitation took place at a seance in São Paulo at which his son Luiz was present. The medium rose slowly into the air and remained there long enough to be photographed (left)

In his book *O Espiritismo a luz dos fatos* ('Spiritism in the light of the facts'), which was published in 1952, Imbassahy relates an incident when Mirabelli was brought, uninvited, to his house. 'There was nobody I less wanted to see,' Imbassahy wrote; he feared 'this perilous mediumship' would start smashing his crockery.

Instead, the 'perilous medium' embarked on a detailed account of the life of one of Imbassahy's friends (whom Mirabelli had never met). Then a servant brought in some bottles of water and put them on a table some 16 feet (5 metres) from where Mirabelli was sitting. 'Immediately,' said Imbassahy,

> in full view of us all, one of the bottles rose halfway up the height of the others and hit them with full force for five or ten seconds, before returning to its place. . . . This was seen and heard clearly, with no shadow of hesitation.

While this was going on, both the medium's hands were being held. Imbassahy would have been only too happy to denounce Mirabelli as a fraud, but he was honest enough to state publicly that he was left 'with the unshakeable certainty' of his abilities.

Eurico de Goes's biography of Mirabelli is crammed from start to finish with detailed accounts of an enormous variety of phenomena, some of them quite extraordinary. At one seance, for instance, the handcuffed medium rose into the air and dematerialised (the handcuffs fell to the floor). Mirabelli was eventually found (lying down and chanting in Latin) in a nearby locked room.

On another occasion, when Eurico de Goes was on his way to visit Mirabelli, he remembered he had left his umbrella at home. As he entered Mirabelli's house, his umbrella promptly fell from the ceiling. Apparent teleportation was also witnessed by the British poet-diplomat Sir Douglas Ainslie, who arrived at a private house in São Paulo and found his travelling clock on the hall table. He had last seen it inside a suitcase in his hotel room.

Express journey

In another incident related by Eurico de Goes, Mirabelli was waiting for a train with a group of friends when they suddenly noticed he was nowhere to be seen. His worried friends telephoned to the house they were heading for, in a town 50 miles (80 kilometres) away. They were told the medium was already there.

In 1973 the Brazilian Institute for Psychobiophysical Research (IBPP) appointed a team of investigators to compile a file on Mirabelli. The team was headed by the leading Brazilian parapsychologist Hernani

Right: the seance room where the levitation (left) took place. The room was recognised as being the one in the levitation photograph when a team of psychical researchers visited the house in 1973. The essential clues were the mouldings round the light fitting in the ceiling, the two doors (partly hidden here by the dividing screen) and the fact that light coming through the window (not shown) would have cast a shadow similar to the one in the levitation picture. Since the room is about 16 feet (5 metres) high, it is estimated that Mirabelli is about 8 feet (2.5 metres) from the ground

G. Andrade, and included the present author. In a few weeks, our file was bulging with firsthand testimony. We also managed to locate and interview three of the medium's sons, none of whom claimed to have inherited any of their father's paranormal skills.

Cesar Augusto Mirabelli was a police investigator with São Paulo's flying squad. He was highly critical of the Spiritist movement, 99 per cent of which, in his opinion, was 'deceit, mystification or bad faith'. He added, 'If my father were a fraud, I would certainly say so.'

However, Cesar insisted, fraud was out of the question; phenomena were often produced just for the family. Among several examples he described was the following:

> We had an ornamental porcelain vase, about 60 centimetres [2 feet] high, weighing, I suppose, three to four kilos [about 7 pounds], standing on a kind of tripod. . . . Suddenly, Father started to look at the corner where the vase was, and I started to look as well. Then the vase just rose into the air about 40 centimetres [16 inches]. Then all at once it turned, picked up speed and smashed itself to pieces against a wall, 2 metres [$6\frac{1}{2}$ feet] away.

This kind of thing, Cesar said, would happen 'almost every day, any time and any place'.

Buried alive

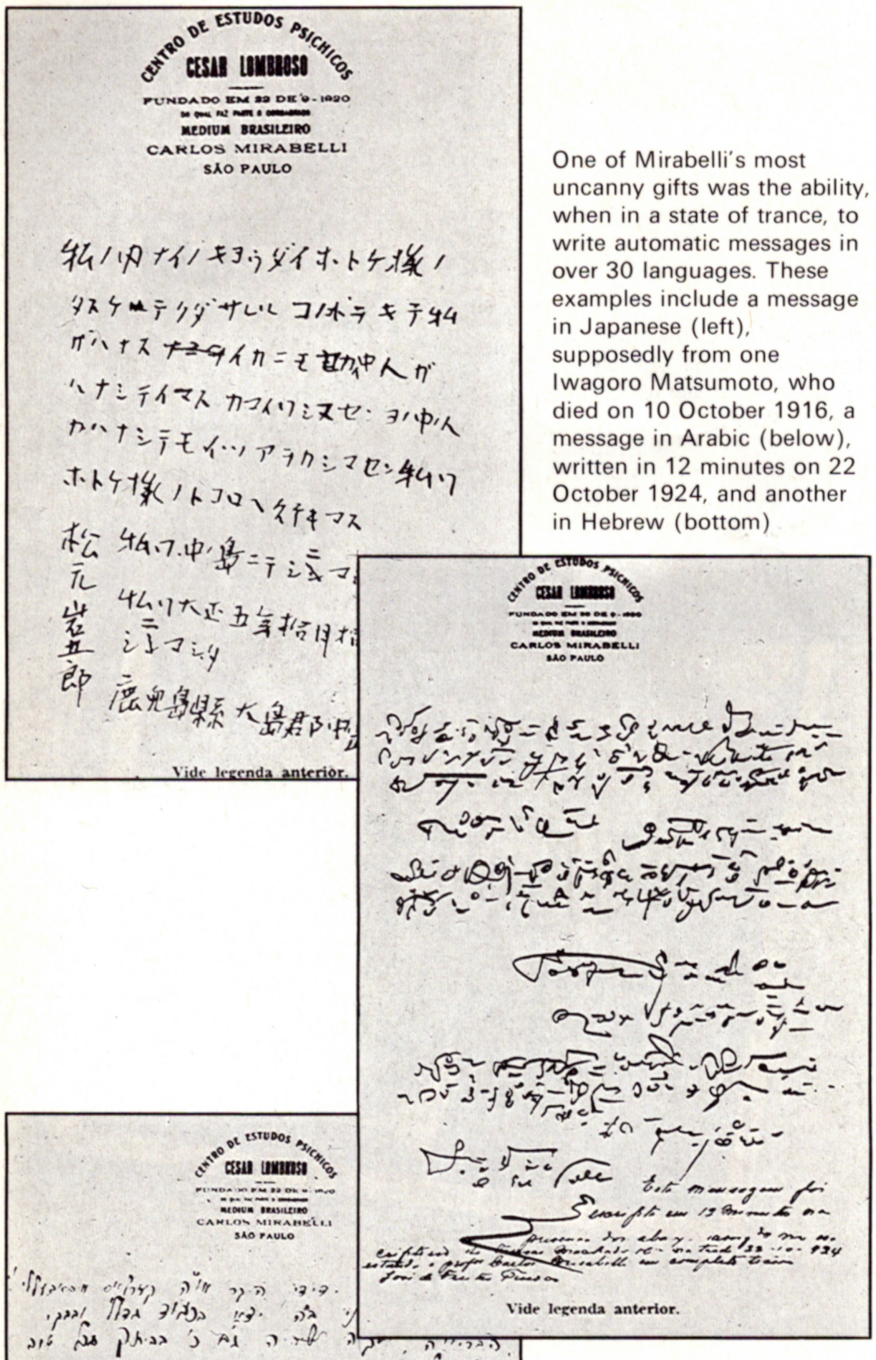
Regene Mirabelli, a businessman and amateur hypnotist, also had plenty of memories of an unusual home life. Once, on hearing an extraordinary noise, he rushed into the living room to find his mother buried beneath a pile of all the furniture. His mother was, he said, resigned to this sort of thing; it was not unusual for her to spend half an hour laying the table, only to find, the moment her back was turned, the whole setting swept to the floor.

Mirabelli's eldest son, Luiz, had become a successful hardware salesman. He remembered a car journey in the open country during which the driver was suddenly slapped violently in the face by an invisible assailant. Mirabelli then told him to engage first gear, 'because "they" are trying to push us backwards'. Whereupon, said Luiz, the car – in first gear – did indeed start to move in reverse.

Luiz was also present at one of the most celebrated incidents in his father's life. It happened during a seance that was being held in a well-lit room. Mirabelli rose slowly into the air, stayed there long enough for a photograph to be taken, and then descended to the ground, also slowly. Luiz described the incident as if it were nothing especially remarkable.

During the IBPP investigation, the team met a São Paulo estate agent named Fenelon Alves Feitosa, who had known the medium well, and still held weekly Spiritist meetings

Right, below and bottom: a remarkable series of pictures showing Mirabelli apparently controlling the gradual materialisation of a complete human form. The entity's robe and hair suggest an African or Indian origin


CENTRO DE ESTUDOS PSICHICOS
CESAR LOMBROSO
FUNDADO EM 22 DE 9-1920
MEDIUM BRASILEIRO
CARLOS MIRABELLI
SÃO PAULO
Vide legenda anterior.
CENTRO DE ESTUDOS PSICHICOS
CESAR LOMBROSO
MEDIUM BRASILEIRO
CARLOS MIRABELLI
SÃO PAULO
Vide legenda anterior.
CENTRO DE ESTUDOS PSICHICOS
CESAR LOMBROSO
MEDIUM BRASILEIRO
CARLOS MIRABELLI
SÃO PAULO
Carmine Mirabelli — o maior medium de todos os tempos tanto de efeitos físicos como de efeitos intelectuais. As fotografias de materialização, ou os fac-similes de psicografia, comprovam a grande e inimitável capacidade metérgica de Mirabelli. Aliás na parte psicográfica, extensa e variada, e de um xenoglossismo simplesmente assombroso, se vêm comunicações, escritas em rápidos minutos, muitas com mais de 10 fôlhas de papel almaço, em espanhol, italiano, latim, holandês, checo, árabe, japonês, russo, turco, hebraico, albanês, chinês, grego (moderno e antigo) e outros idiomas, alguns até com os seus dialetos. Damos a seguir uns fac-similes psicográficos.

One of Mirabelli's most uncanny gifts was the ability, when in a state of trance, to write automatic messages in over 30 languages. These examples include a message in Japanese (left), supposedly from one Iwagoro Matsumoto, who died on 10 October 1916, a message in Arabic (below), written in 12 minutes on 22 October 1924, and another in Hebrew (bottom)

in his memory. As it happened, Senhor Feitosa had just been asked to sell a house that he recognised as being one of Mirabelli's former centres.

The team went to visit the house, which was No 6 Rua Natal, in the Tucuruvi district. When we were going through the rooms, we recognised one of them as the scene of the levitation photograph. It seemed that the light coming through the window would have cast a shadow similar to the one seen in the photograph. The room was about 16 feet (5 metres) high and, in the photograph, Mirabelli's feet appear to be at least half that distance from the floor.

Moving explanation

In December 1935 the *Journal* of the Society for Psychical Research (SPR) in London carried a long report on Mirabelli by Theodore Besterman that added to the controversy surrounding the medium. Mr Besterman had witnessed a number of incidents involving the movement of objects, but remained sceptical. He asserted that 'hidden threads' were the explanation, although he admitted that he never found any. He had watched a piece of board revolving on top of a bottle – which puzzled him – and had also witnessed Mirabelli writing more than 1700 words in 53 minutes in French, a language he is thought not to have learned.

'Mirabelli left me in no doubt that he was purely and simply fraudulent,' Besterman told this author in 1973. 'Once I had expressed this opinion, none of his followers would talk to me.'

Fortunately other investigators were not so tactless. The eminent embryologist Hans Driesch, who was also president of the SPR, witnessed at least one 'most impressive' demonstration of psychokinesis in 1928. In 1934 May C. Walker of the American SPR described 'the most impressive telekinesis I have ever seen' after a session in which, among other things, a fan began to 'wriggle about, as if alive' in her hand.

One of the few Brazilians to make a systematic attempt to test Mirabelli's skills was a well-known doctor and public health official, Dr Thadeu de Medeiros. The medium worked for a time in the doctor's clinic as a kind of paranormal diagnostician. But bottles of medicine kept flying around the room, so this phase of his career also came to an abrupt end.

In 1960 Dr E. J. Dingwall of the SPR lamented that the Mirabelli case 'remains another of those unsolved mysteries with which the history of parapsychology abounds'. He put much of the blame on Besterman, for not keeping proper records.

Mirabelli died in 1951. His son Cesar Augusto has movingly described how, while they were on the way to the local cinema, the medium dashed across the road to buy his son an ice cream. He was hit by a car, and died without regaining consciousness.

The man who invented psi

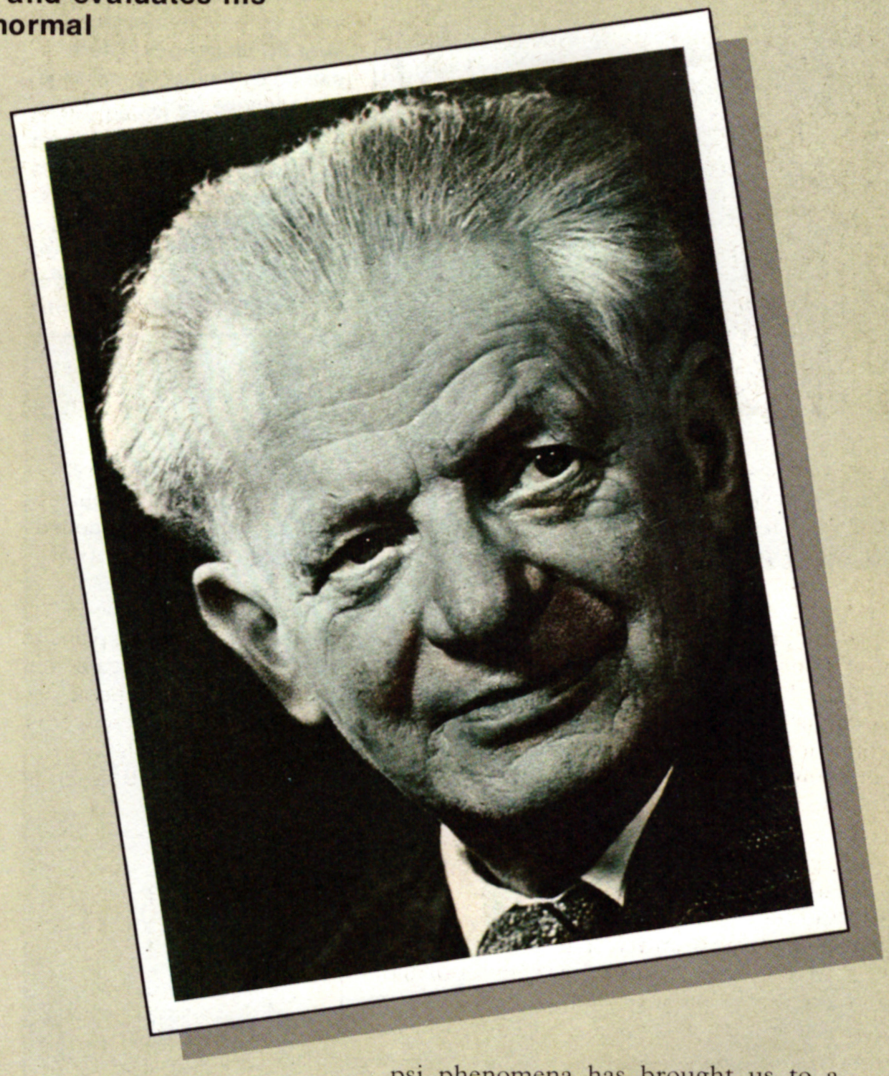
The achievement of Robert Thouless, one of the pioneers of British experimental parapsychology, is immense. ARTHUR BERGER reviews his career – and evaluates his contribution to the study of the paranormal

ONE OF THE HIGH SPOTS of the 1982 centenary-jubilee conference of the Society for Psychical Research (SPR) and the Parapsychological Association (PA) in Cambridge, England, was a spontaneous standing ovation accorded by over 300 participants to a veteran of psychical research, Dr Robert Thouless, after his invited address.

It was fitting that Thouless should have been honoured in this way in 1982, in a place with as deeply rooted a tradition in parapsychology as Trinity College, Cambridge. One hundred years earlier, in 1882, the SPR was founded by a group of men of letters, such as Henry Sidgwick, Frederic W. H. Myers and Edmund Gurney, all scholars at Trinity College, and other people from Cambridge, many of them with scientific backgrounds, such as Eleanor Balfour (later Mrs Henry Sidgwick) and Lord Rayleigh. The object of the society was to examine psychical phenomena 'without prejudice or prepossession of any kind, and in the same spirit of exact and unimpassioned inquiry which has enabled Science to solve so many problems'. For half a century Robert Thouless has devoted his life to this examination.

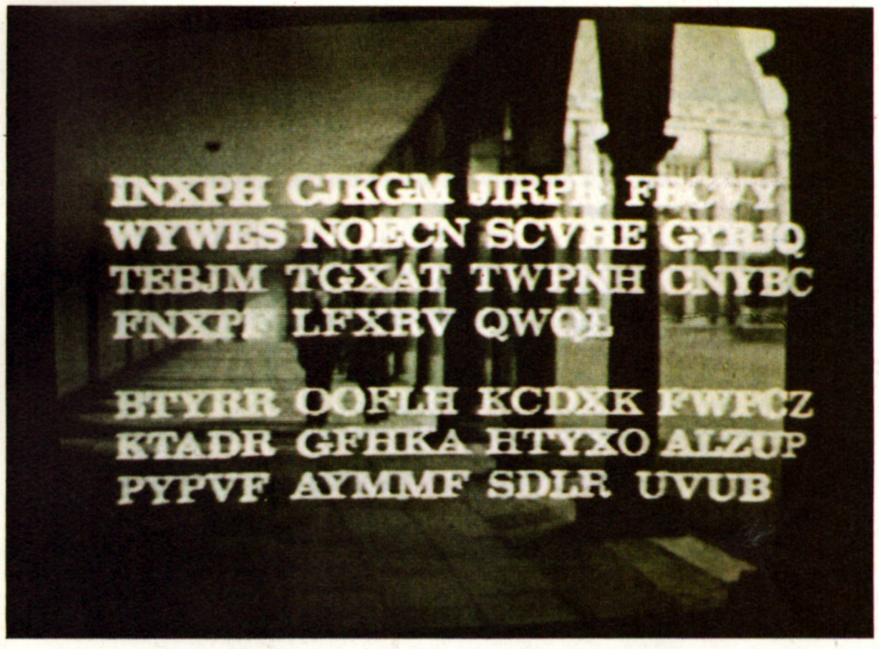
A former lecturer in psychology at the universities of Manchester, Glasgow and Cambridge, a former president of the SPR and the author of two books and more than 90 articles on parapsychology, Thouless has been a keen critic of scientific prejudice all his life. Faced with facts that do not fit in with their systems of assumptions and beliefs, many scientists refuse to recognise their existence – even when they are the result of experiment. Thouless confronted this attitude in a paper he presented in 1950 to the Royal Institution of Great Britain:

> In all science an unexpected experimental result is a challenge to the basis of our expectations and so becomes a possible starting point of theoretical advance. The failure of the Michelson-Morley experiment to reveal the expected motion of the earth relative to the ether [see page 803] made necessary the reconstruction of the theory on which the expectation of a detectable ether drift was based. By good fortune, this situation also produced the genius of Einstein who was able to take the essential step in the reconstruction of theory which made the Michelson-Morley result explicable.
>
> I would suggest that the discovery of psi phenomena has brought us to a similar point at which we must question basic theories because they lead us to expectations contradicted by experimental results. . . . I can only suggest that we must be ready to question all our old conceptions and to distrust all our habits of thought.



Robert Thouless as president of the Society for Psychical Research, an office he held from 1942 to 1944. Trained as an experimental psychologist, he has always insisted on the importance of reproducing paranormal events in the laboratory and is noted for the design of a number of ingenious experiments to test telepathy and clairvoyance

Thouless felt, in particular, that the words we use to describe psychic phenomena may influence the way we think of them. For instance, extra-sensory perception (ESP), used to designate telepathy and clairvoyance, suggests that these phenomena involve some kind of perception akin to seeing, hearing or tasting. And the term psychokinesis (PK) may commit us to the theory that an immaterial mind is somehow directly influencing a material object. This may or may not be the case, and Thouless – together with his colleague B. P. Wiesner – felt that it would be altogether simpler and better to



discard these terms and use instead a word that suggested nothing about what was really taking place. Thouless was the first to coin the word 'psi' to cover both ESP and PK. Psi is the twenty-third letter of the Greek alphabet and the first letter in the Greek word 'psyche', meaning 'mind' or 'soul'. Thouless also suggested that the term 'psi gamma' should be used for cognitive phenomena, such as telepathy, clairvoyance and precognition, and 'psi kappa' for the kinetic phenomena in which material objects are influenced apparently without the use of physical energy.

Together with B. P. Wiesner, Thouless formulated a most interesting hypothesis to account for both ESP and PK: the theory of the *shin*, a psychical entity that operates in all cognitive activity, normal and paranormal, and interacts not only with outside objects and outside brains but also with the brain and nervous system of the individual in whose body it is to be found. The shin is similar to what some philosophers and religions have called the soul or spirit, but it deliberately avoids the supernatural overtones of these terms and uses instead another natural term, the twenty-first letter of the Hebrew alphabet, to describe the entity. Whether or not it is destined for success in accounting for paranormal phenomena, the theory stands as an ingenious attempt to accommodate both normal and paranormal events. The leading parapsychologist J. Gaither Pratt once wrote that the shin theory should be 'required reading for all students of parapsychology'.

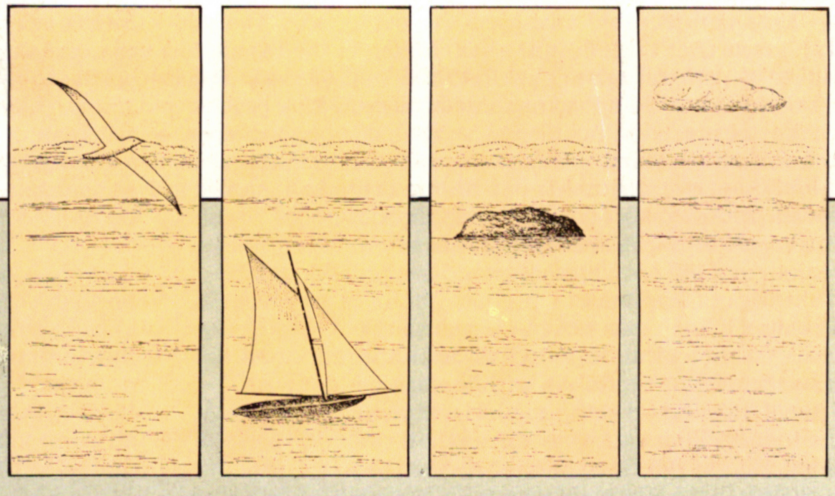
Above: a still from a 1973 BBC programme on Thouless's work showing two encoded messages that form part of an experiment to prove survival of death. After his own death, Thouless plans to attempt to communicate, not the content of the coded messages, but the key words that make it possible to decipher them – a passage of literature in the first case, a pair of words in the second

Psychic strength

Perhaps Thouless's chief strength as a psychical researcher is his academic training as a psychologist. What was it that, in 1934, sparked his interest in the world of the paranormal? In a letter to the author, he said:

> The area of parapsychology in which I started being interested was that of experimental work. This followed from the fact that I came to parapsychology as an experimental psychologist with my main interest in the experimental study of visual perception. Also from the fact that my interest in parapsychology was started by my contact with the experimental work of J. B. Rhine.

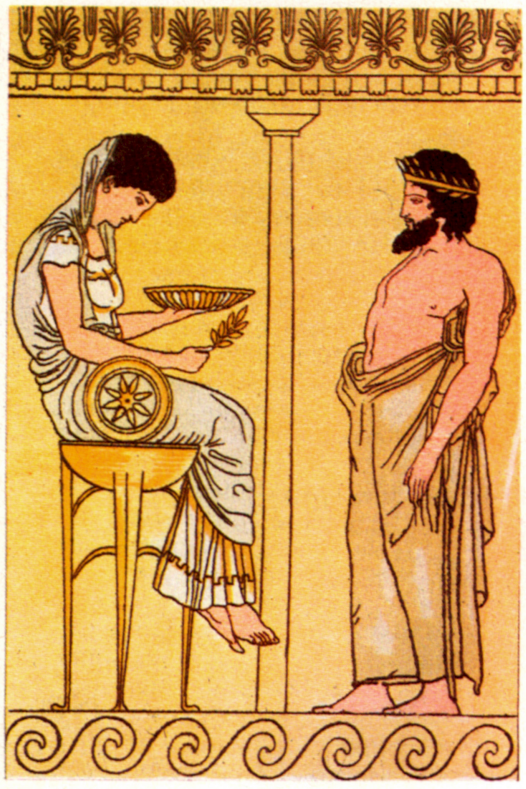
Like Rhine, Thouless stresses the importance of the reproducibility of paranormal events in the laboratory. He believes that the main benefit to be gained from experiment in psychical research is that the experimental



An orderly mind

Robert Thouless's experimental work is characterised by a refreshingly open and honest approach. He has always been alert to the purely psychological factors that can influence the success of psi experiments. In particular, he has studied the well-known 'decline effect' – the fact that, over a run of psi experiments, subjects tend to score progressively worse. He has also been at pains to make psi experiments interesting for the subject, and has suggested a 'picture construction' test that, he hopes, would 'make it possible for those subjects to succeed who found ordinary card-guessing mechanical and boring'.

Subjects are simply asked to combine four picture strips (above) in the same order as a hidden target. Thouless found, sure enough, that his subjects *did* find this more interesting than card-guessing. But, as he admits in *From anecdote to experiment in psychical research*, there was an unfortunate side effect: all his subjects scored at chance level. With engaging candour – and in the true disinterested spirit of science – he invites other researchers to repeat his experiments and see whether their results are better.



Consultation of an oracle, in an illustration adapted from a Greek source of the fifth century BC. Paranormal abilities such as prophecy, widely recognised in the past, were termed by Thouless and his colleague B. P. Wiesner *psi* – the twenty-third letter of the Greek alphabet. Thouless and Wiesner felt that the terms we generally use to describe psychic phenomena – psychokinesis, extra-sensory perception and so on – may influence our idea of how they actually work, and hoped to avoid this by using the neutral term psi

method allows us to obtain 'definite answers to a wide range of questions that can be answered only vaguely or not at all' by the ordinary experiences of men and women. Thouless himself is no armchair experimentalist. He tried to create situations in which paranormal phenomena would happen at times and places of his choosing. He conducted extensive experiments in card-guessing and with dice and coin-spinning; these have considerably advanced the psychical researcher's technique and understanding of ESP and PK.

Thouless's other important contributions to psychical research include his studies of the effect that feedback of information about a subject's performance has on his or her subsequent psi scores, of decline and salience effects (variations in scores during runs of psi experiments), of problems of precognition and theories of hypnosis.

Perhaps Thouless's most important area of parapsychological research is into the bodily survival of death. An earlier giant of psychical research, Frederic W. H. Myers, once wrote: 'The question for man most momentous of all is whether or no his personality involves any element which can survive bodily death.' It was plain to Thouless that this question needed experimental study. He therefore devised an experiment designed to obtain the strongest possible evidence for survival. In this experiment, a test message is prepared in cipher using a standard method of encipherment with a key passage or key words that are neither told to anyone nor recorded in any form. The person who prepares the message leaves it with researchers and plans to communicate, after his or her own death, the key that will allow the message to be deciphered. The beauty of the experiment is that it can be tried repeatedly without being spoiled for future communication.

This ingenious experiment has opened the gateway for other survival researchers to make a major advance in the experimental investigation of the survival question. One example of such an experiment is the significant research programme, involving large numbers of subjects, being conducted by the Survival Research Foundation of the United States (see issue 98), which uses Thouless's test, and others, to see whether key words or phrases can be transmitted to the living by dead communicators.

Throughout Thouless's lifetime of work in parapsychological research, he has not abandoned his refreshingly open attitude to his subject. Perhaps its best expression is found in the closing sentences of his book *From anecdote to experiment in psychical research* (1972):

> . . . all scientific research is essentially a puzzle-solving activity. . . . We do not know where we shall be led by the solution of the puzzles of psi, whether to a better world or a worse one, at any rate to a world that we shall understand more fully. There are still voices who assure us that there are no puzzles to be solved in this field. This is, however, no longer a reasonable belief. The research already carried out has made it clear that the problems are real; we seem still to be a long way from the solution of them.

The raising of the dead, and the weighing of souls at the Last Judgement, in an illustration from a 13th-century French manuscript. Thouless and Wiesner developed a theory to account for the whole range of psi activity – the theory of an entity that they called the *shin*. The shin – the name of the twenty-first letter of the Hebrew alphabet – stands for a psychic and psychological element that controls all human activity, both normal and paranormal

Further reading

R. H. Thouless, *Experimental psychical research*, Penguin 1963

R. H. Thouless, *From anecdote to experiment in psychical research*, Routledge and Kegan Paul 1972

Post script

Your letters to THE UNEXPLAINED

Dear Sir,
Over the years I have had several 'lucid dreams' in which I retained full consciousness of my dream environment, being perfectly aware that I was dreaming. Sometimes the scene would be a location well-known to me; I might be gliding along the footpath of the main street in Callan, or along some country road, about 6 inches [15 centimetres] above the ground. On other occasions, I would find myself floating effortlessly over an unfamiliar landscape of incredible beauty. These nocturnal experiences differ from ordinary dreams in many respects. There is a sense of absolute freedom, and the clarity of one's vision is greatly enhanced, enabling one to see in what I can describe only as 'technicolour'. More importantly, they are accompanied by a strange feeling that what is happening is quite real, and not merely an illusion.

It was in the course of such a dream that I experienced an intensely vivid and disturbing premonition, one that I will never forget as long as I live. I felt myself to be floating like a weightless bubble above the garden at the back of our house, idly contemplating the adjoining houses and the bridge spanning the river that separates them. Clearly visible on the opposite side of the bridge was the Catholic chapel and the usual shops, public houses and so on. Neighbours were watering flowers, hanging out washing, chatting with friends; traffic was passing up and down the High Street as usual. In fact, everything appeared as it would to my waking consciousness – except for a faint buzzing sensation inside my head and the unnatural intensity of the colour (the lawns seemed altogether greener than they should be; the sky was a remarkably deep blue). And everything had a strange quality of perfection and tranquillity. Suddenly there was a blinding flash and the world seemed to collapse around me. The entire area within my field of vision spontaneously burst into flames. Looking up at the sky I imagined for a moment that I saw bombs falling, but could neither see nor hear aircraft. All the buildings, including our own house, quickly disintegrated. Within seconds I could see nothing but blazing fires and great clouds of dust; thick black smoke rose from the charred remnants of what had once been a town.

At this point I woke up in a cold sweat – deeply disturbed by this apparent vision of some definite future event. Unlike most dreams, which are quickly forgotten on waking, this experience remains with me. Although at first I tried to dismiss it as a common nightmare, I have come to believe – reluctantly – that it somehow portends the nuclear holocaust towards which I believe we are heading and cannot avoid. This vision came to me seven years ago.
Yours faithfully,
John Fitzgerald Callan, Kilkenny, Ireland

Dear Sir,
I found the article entitled 'As round as saucers' by Ian Mrzyglod in issue 121 of *The Unexplained* particularly interesting. I took the photograph of the 'UFO nest' beside Cley Hill – 2 miles [3 kilometres] from Warminster in Wiltshire – which was used to illustrate his article. I agree with his theory that the circle was, in fact, made by a whirlwind.

I should like to add that I also heard 'the booms' – a phenomenon known locally simply as 'the Warminster booms' or even just 'the Warminster thing' – three times, together with my father as we stood on Cley Hill. My mother and sister, who were in the car close to the hill, also heard 'the booms'. We can categorically state that the noises did not come from a jet, or a gun – nor was it thunder. Then the four of us felt a sort of electrical static.

It seems that there are many strange goings-on in and around Warminster, from strange lights dancing in the sky to mysterious electrical disturbances. Yet, despite rumours to the contrary, the town of Warminster does not exploit its reputation as a centre of UFO activity. In fact many people who live there are reluctant to describe their weird experiences.

But it strikes me that the nature of the phenomena reported – 'booms', fireballs and so on – smacks, not of alien, but of *natural* activity. We don't need people from other worlds to create such havoc. Nature can do it on her own.

As for Warminster being in a 'window area', I suppose it could be possible, but again it could be a natural focus for bizarre happenings.

There *is* something odd going on at Warminster that needs thorough and serious investigation, but I doubt that whatever it is is connected with flying saucers; rather with nature at her most mysterious. Perhaps one day sensible investigation will explain it.
Yours faithfully,
J. J. Wheeler Houghton-le-Spring, Tyne and Wear

Dear Sir,
An unexplained incident happened to me in 1939 when I was working as a door-to-door interviewer. At one house an old lady opened the door, agreed to a demonstration of the product and made an appointment for a representative to do so within a couple of days, signing an agreement. I noticed she was wearing a blue overall patterned with white flowers.

But when the demonstrator called at the house he discovered a young couple lived there; as I was working only two streets away, he came to find me in the hope that I could clarify the situation.

The couple declared that they had just returned from holiday and were adamant that no one had lived in their house while they were away. I described the old lady I had spoken to and showed the couple her signature; they said it was the woman who used to live there before them, but who died – and it was because of her death that the house had fallen vacant.

I had talked to the old woman for quite some time; she had signed her name – yet she was dead. How could this have happened? Was it some kind of a timeslip – or did she still believe she was alive and living in her old house?
Yours faithfully,
J. Tewes (Mrs) Chatham, Kent

Send *your* letters to THE UNEXPLAINED, Orbis House, 20–22 Bedfordbury, London WC2N 4BT

THE WORLD'S MYSTERIOUS PLACES

41 Dwarfie Stane, Orkneys

This large hollowed-out block of sandstone lies on the island of Hoy. It is 28 feet (8.5 metres) long, 14 feet (4.2 metres) wide and 8 feet (2.4 metres) high. Antiquaries of the past believed that it was a habitation: they thought that inside they could identify two large beds, complete with pillows, carved out of the rock and that a round hole in the ceiling was a chimney and window combined. However, the stone is nowadays thought to be a tomb.

42 Aztec Ruins, USA

These ruined buildings were nothing to do with the Aztecs of ancient Mexico, as early American settlers mistakenly believed: they were erected by Pueblo Indians of the early 12th century. The main ruin is that of a single multi-storied pueblo – a village in one building of 500 rooms, housing perhaps 450 people. Mysterious circular structures of three concentric walls were also built: they were probably used for ceremonial purposes.

43 Swallow Falls, Wales

The beautiful Swallow Falls are to be found at Bettws-y-Coed in Gwynedd. Their name is popularly supposed to allude to the rapid, darting motion of the waters, or else to a 'swallow's tail, for at one place the waters divide into two streams. In fact the Welsh name is a corruption of an earlier one meaning 'the foaming fall'. The roar of the falls is said to mask the cries of an imprisoned spirit – that of the evil Sir John Wynn, who died in 1627.

44 The Holestone, Northern Ireland

Scattered throughout Britain there are many stones that contain holes, either natural or artificial, and that are regarded as being of magical significance. This stone, standing at Doagh in County Antrim, contains a hole only just large enough for a hand to be pushed through. It is said that newly engaged couples confirm their betrothal by the ritual of clasping hands through the hole – probably a survival of an old fertility ritual.

45 Bala Lake, Wales

The largest natural lake in Wales, Bala Lake is $3\frac{1}{2}$ miles (6 kilometres) long and 1100 yards (1 kilometre) wide. Legend has it that once there was no lake here. Among the inhabitants of the area there were only two good people, a man and his wife. One day they followed a small bird up the hill. When they arrived at the site of the present town of Bala, the mountains opened and the sea rushed in to form the lake, drowning the wicked people but sparing the couple.

46 Petra, Jordan

The spectacular city of Petra, carved out of the red, yellow and purple sandstone slopes of a desert plateau, lies on a site that has been occupied since the Old Stone Age. It was fought over constantly by Arab peoples and from about 312 BC was the capital of a powerful tribe, the Nabataeans, until in AD 106 they were defeated by the Romans. In nearby Wadi Musa (the Valley of Moses), Moses is said to have struck a rock, creating a spring.